

LA-UR- 11-06518

Approved for public release;
distribution is unlimited.

Title: Los Alamos National Laboratory Response to Las Conchas Fire

Author(s): Brenda Andersen, EO-EM

Intended for: Infra-Gard



Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under contract DE-AC52-06NA25396. By acceptance of this article, the publisher recognizes that the U.S. Government retains a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

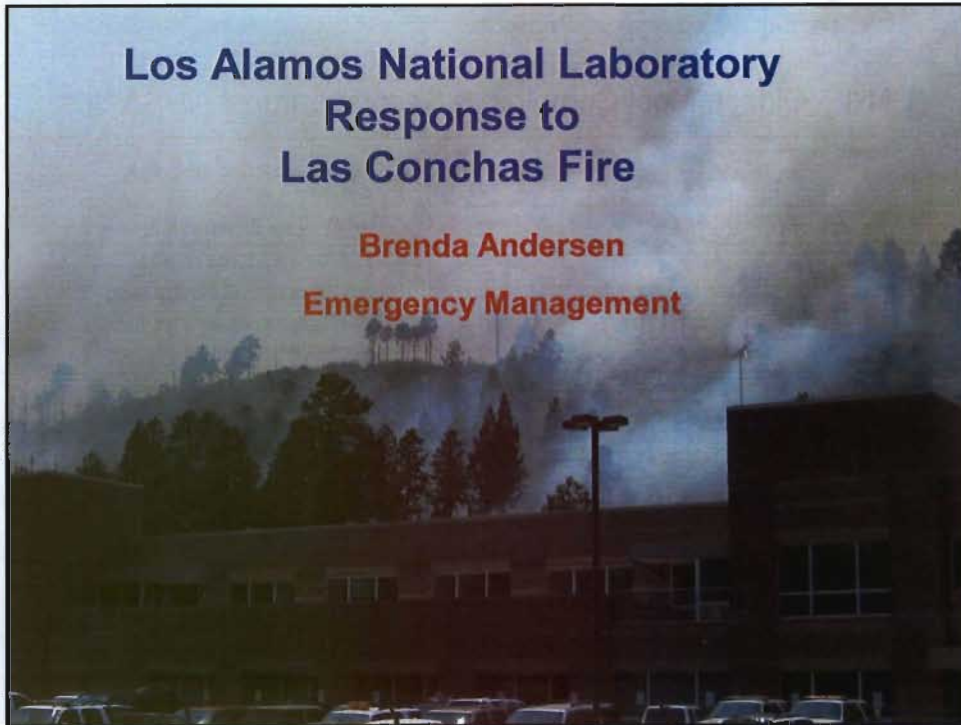
Abstract

The *Los Alamos National Laboratory Response to Las Conchas Fire* is a presentation on LANL's preparedness, response, and recovery to the Las Conchas fire. The presentation addresses challenges, successes, and lessons learned.

The presentation will be given to the Albuquerque chapter of InfraGard, an FBI and private business collaboration, on Friday November 18, 2011. The presenter is Brenda Andersen from Emergency Management.

Los Alamos National Laboratory Response to Las Conchas Fire

Brenda Andersen
Emergency Management



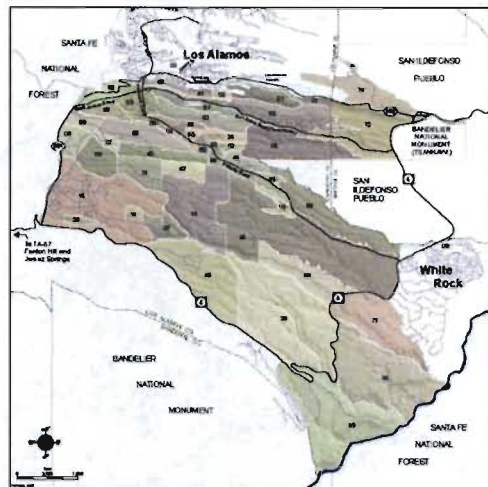
Overview

- Site description
- Site Hazards
- History of Wildland Fire
- Cerro Grande/Las Conchas Impact on LANL
- Wildland Fire Protection Program
- Emergency Operations Center
- Technological Issues, Cyber Security, Pro Force
- Recovery

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



LANL - Oldest, Most Complex, & Second Largest NNSA Site



- ~40 Square miles – mesas & canyons & valleys
- 9 million sq. ft. of building space
- 11,000+ work force on site
- 268 miles of roads (100 paved)
- 139 miles of 115-KV & 13.2-KV transmission lines
- 58 miles of natural gas distribution lines
- 8+ High/mod nuclear facilities
- 10+ high/mod hazardous facilities
- Several Metric tons of nuclear material in multiple facilities
- ~140,000 Chemical containers
- ~40,000 Chemical transactions per year

Los Alamos
NATIONAL LABORATORY
EST. 1945
Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

UNCLASSIFIED – LA-UR 11-05196

Slide 3



Types of Hazards at LANL

- Wildland Fires
- Structure fires and explosions
- Natural phenomena impacts
- Environmental releases
- Hazardous material releases
 - Radiological
 - Chemical
 - Biological
- Workplace accidents
- Intentional attack



Los Alamos
NATIONAL LABORATORY
EST. 1945
Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

UNCLASSIFIED – LA-UR 11-05196

Slide 4



Wildland Fire History

- 1954 Water Canyon Fire – ~ 6000 acres
- 1977 La Mesa Fire – 15,444 acres
- 1996 Dome Fire – 16,516 acres
- 1997 Lummis Fire – 1,500 acres
- 1998 Oso Fire - 5,185 acres
- 2000 Cerro Grande Fire – 45,000 acres
- 2002 Lakes Fire - 3,900 acres
- 2008 Ancho Canyon Fire – 17 acres
- 2009 San Miguel Fire - 1,635 acres
- 2010 South Fork Lake Fire - 17,100 acres
- 2011 Valle Canyon Fire – 95 acres
- 2011 Las Conchas Fire - ~156,000 acres



Dome fire exploded on April 26, 1996, starting from an improperly extinguished campfire and continued until 16,516 acres in Capulin Canyon and the Dome Wilderness were burned.



UNCLASSIFIED – LA-UR 11-05196

Slide 5

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Cerro Grande & Las Conchas Wildland Fire Impact on LANL

- **Both fires caused a great impact –**
 - Cerro Grande ~49k acres (4k on LANL property)
 - Las Conchas ~156K (< 133 acres on LANL property)
- **Both caused multiple day “shut down” of LANL**
- **Emergency Operations Center was operational 24/7 for multiple days**
- **Security Enhanced:**
 - Access control & accountability
 - SNM protection
 - Cyber Security
- **Unhealthy Air Quality**
- **Los Alamos County Impact**
 - LA Medical Center shut down
 - Townsite evacuated



UNCLASSIFIED

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



LANL's Wildland Fire Preparedness

- Great deal of time & effort goes into emergency planning & preparedness – this includes wildland fire.
- Inter-agency agreements are in place
- Fuel migration projects are on-going annual efforts.
- Fire fighting equipment and training is on-going.
- Federal/county EOC
- Emergency Response Organization staffing & training
- COOP is a relatively new initiative in the DOE world.
- Exercise, exercise, exercise



UNCLASSIFIED – LA-UR 11-05196

Slide 7

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Sunday, June 26th, 2011

- [13:00] Las Conchas fire started south of Cox Ranch
- [15:41] EOC is activated. Wildland fire affected areas southwest of LANL.
- [18:15] Decision made to close Lab on 6/27/11. Laboratory facilities/areas placed in safe configuration.
- [20:00] Voluntary evacuation for Los Alamos town site.
- Fire grew 43,782 acres.

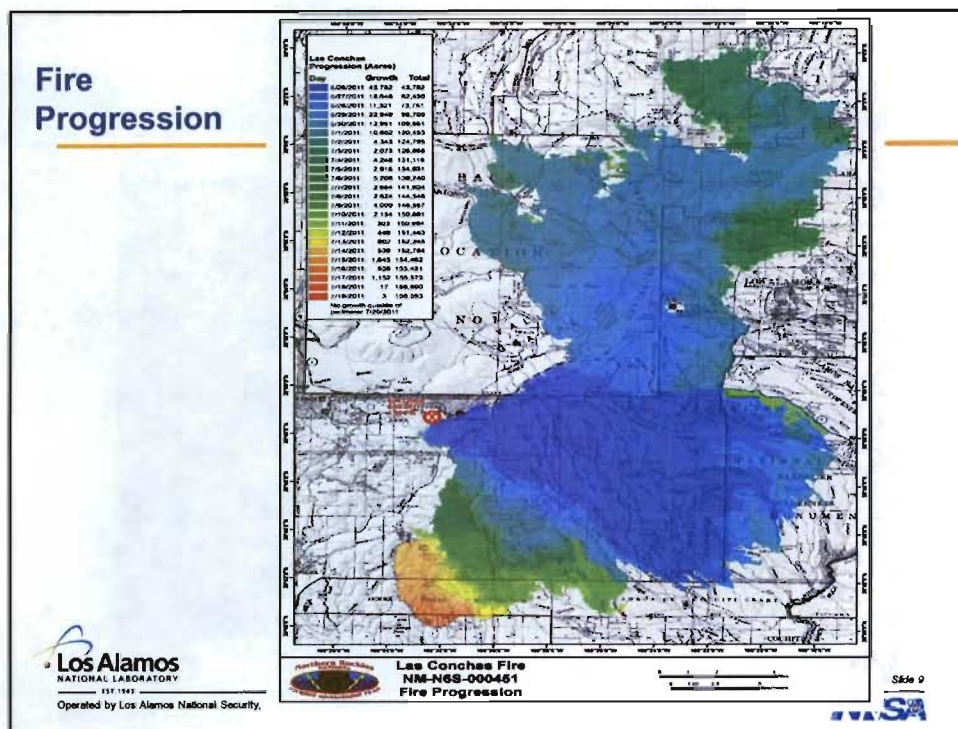


UNCLASSIFIED – LA-UR 11-05196

Slide 8

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA





LANL Response Activities

- Activated the EOC
- Protected LANL resources & assets
- Developed (& continued to improve) the access & accountability processes
 - Securing the LANL site is relatively easy for our protective force – BUT providing "access control" for the site is NOT.
- Back up communication systems
- Logistics
- Defended against cyber-security attacks
- Payroll Processed
- Press releases, tweets, twitters, Facebook
- Mitigation Projects Completed



Los Alamos
NATIONAL LABORATORY

UNCLASSIFIED – LA-UR 11-05196

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

NNSA

Monday, June 27th, 2011

- [13:09] Declaration of Health & Safety Operational Emergency.
- Fire on LANL--two-acre spot fire in Water Canyon, at TA-49.
- [13:30] Mandatory evacuation of town site begins.
- Fire grew to 62,430 acres.



UNCLASSIFIED - LA-UR 11-05196

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

Slide 11



EOC Activation

Interagency Coordination

- Decision making
- Briefing

Planning for LANL & Los Alamos County

Operational oversight

Logistical support

- Food
- Motels
- Sundry items

Public Information

- News Releases
- Social Media

Centralized location



Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Protective Force Actions during a Wildland Fire

- Help with securing the site (both fires started during a weekend).
- Controlled all vehicle access to the site (staffed Vehicle Access Portal locations).
- Responded to vault & facility alarms.
- Continued site area patrols.
- Helped secured facilities.



UNCLASSIFIED - LA-UR 11-05196

Slide 12



Protective Force Actions during a Wildland Fire

- Assisted with ensuring all Special Nuclear Material was secure (e.g., vaults & containers)
- Provided a critical support in the positive control of access to the site to key personnel.
- Teamed with local and state police and National Guard to provide access control.
- Provided positive control of individuals involved in a special project - ensured radio communication in case the team needed to be evacuated from a remote work site.



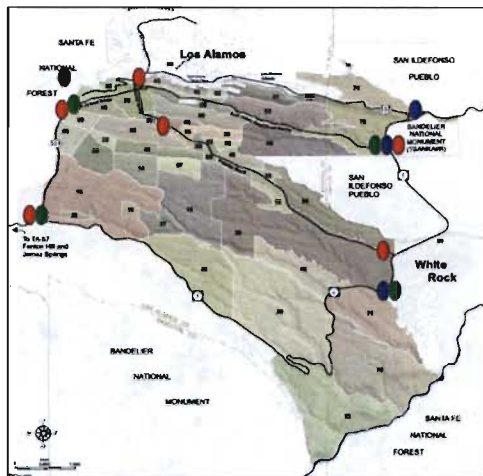
UNCLASSIFIED - LA-UR 11-05196

Slide 14

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Access Control & Site Closure



Site Access Controls & Check Points:

- LANL SOC – Security Police Officers
- New Mexico State Patrol
- New Mexico National Guard

Access Control Challenges:

- Access Control Procedures
- Training Outside Security Support
- Access Controls for Off-Site Responders
- Access Controls for Off-Site Logistics
- Secondary Road Access
- Hiking Trails

Note: LANL Security Areas Cannot be Access via Secondary Roads and Trails

Los Alamos
NATIONAL LABORATORY

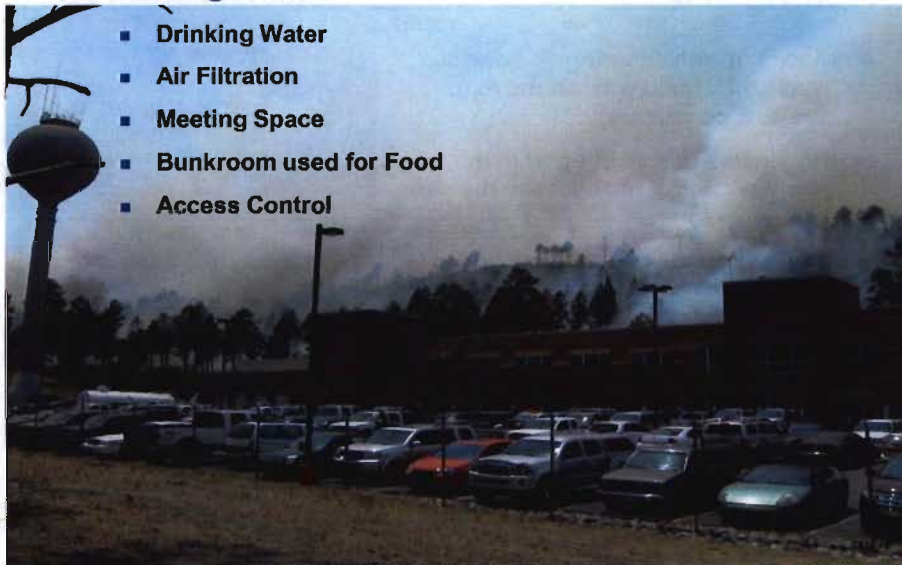
UNCLASSIFIED – LA-UR 11-05198

Slide 15

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



EOC Building Issues



- Drinking Water
- Air Filtration
- Meeting Space
- Bunkroom used for Food
- Access Control

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Communication Issues

Radios

- Repeater on Pajarito Mtn.
- Backup system at EOC

Cell Phones

- Verizon reallocated resources
- COW (cells on wheels)
- GETS/WPS



Los Alamos
NATIONAL LABORATORY

EST. 1943

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

UNCLASSIFIED - LA-UR 11-05196

Slide 17



IT Challenges

■ IT

- Anticipated loss of power
 - Extreme heat from HVAC shutdowns – over 90 degrees
- Servers interconnected – shutdown challenges
- Usage of LANL network from offsite
- Crypto-cards

■ Cyber Security

- Increased volume of cyber threats

■ Payroll

- Payroll met
 - Checks printed by Wells Fargo, where necessary

■ Training

- Extensions arranged and granted to preserve authorities & access

Los Alamos
NATIONAL LABORATORY

EST. 1943

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

UNCLASSIFIED - LA-UR 11-05196



Support Service Challenges

- Fuel for field crews
 - Gas & Diesel
- Water
- Heavy Equipment
- Food & Water
- PPE



Los Alamos
NATIONAL LABORATORY
EST. 1943

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

NNSA

PIO Challenges

- Staffed JIC & EOC
- News Releases
- News Conferences
- Social Media

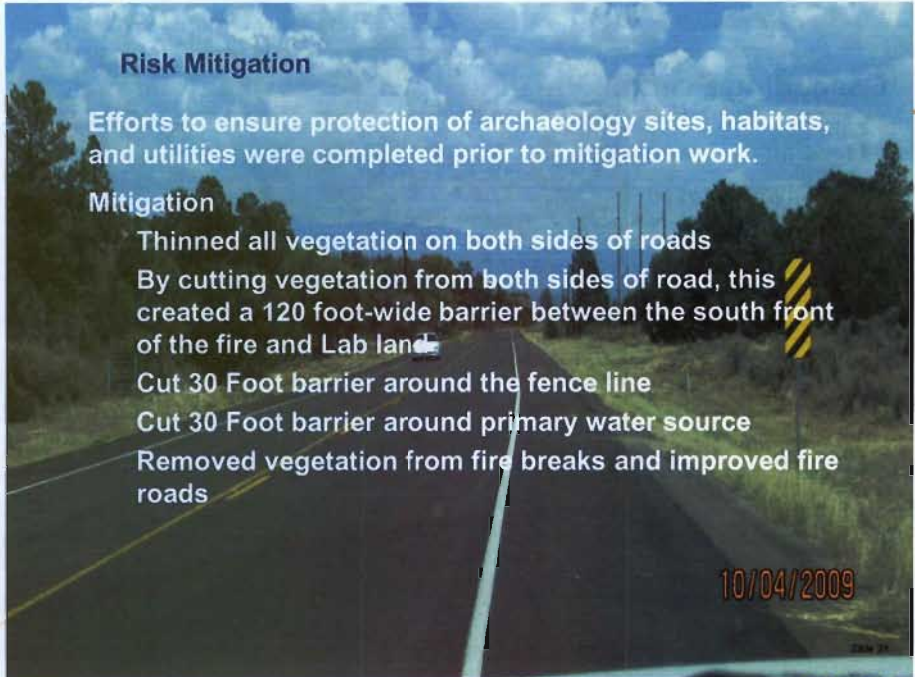


Los Alamos
NATIONAL LABORATORY
EST. 1943

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



NNSA



Risk Mitigation

Efforts to ensure protection of archaeology sites, habitats, and utilities were completed prior to mitigation work.

Mitigation

- Thinned all vegetation on both sides of roads
- By cutting vegetation from both sides of road, this created a 120 foot-wide barrier between the south front of the fire and Lab land
- Cut 30 Foot barrier around the fence line
- Cut 30 Foot barrier around primary water source
- Removed vegetation from fire breaks and improved fire roads

10/04/2009

Recovery

- FODs performed “habitability” walk downs to ensure LANL facilities were safe to occupy.
- July 3rd, 2011 [8:00] Los Alamos County Roadblocks lifted, town repopulated.
 - State Road 4 closed West of Monterey Drive South, and all access points to the Jemez Mountains to and from Los Alamos County closed.
- July 5th, 2011: Managers conducted walk downs to assess safety conditions.
- July 6th, 2011: LANL reopens.
 - Employees briefed by local managers to ensure a safe and secure reopening.
- LANL work crews installed flood and erosion control measures to reduce effects of flash flooding on the environment.

Cascading Events

Flooding

- Canyons closed
- Roads floods

Animals

- Bears, coyotes,
- Snakes
- Chipmunks



Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Las Conchas Lessons Learned - Positive aspects

- Clearing and thinning activities after Cerro Grande fire reduced fuel load.
- Pre-planning performed by Interagency Wildfire Management Team proved useful.
- Teamwork was essential – LAC, LAPD, LAFD, FS/PS.
- Portable high-volume air sampling stations allowed data to be obtained more rapidly.
- Formally chartered recovery team, formally approved recovery plan, approved checklists for facility pre-entry requirements, facility re-entry pre-job briefs, and facility walk downs aided the transition to recovery.



UNCLASSIFIED – LA-UR 11-05196

Slide 24

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Las Conchas Lessons Learned - Areas of improvement

- On-call lists, emergency contact information, organizational phone trees.
- Pre-established emergency communications website and media distribution lists.
- Back-up communication duplication necessary.
- Include all disciplines in plans and briefings.
- Communication with employees who do not have access to LANL intranet.
- Situation-specific access control to the LANL site and the EOC.



UNCLASSIFIED - LA-UR 11-05196

Slide 25

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Closing Remarks

- Damage to the Laboratory was limited to a fraction of the potential loss due to the preparedness, training, equipment, and interagency coordination of LANL.



UNCLASSIFIED - LA-UR 11-05198

Slide 26

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA



Back Up Slides & Photos



Los Alamos
NATIONAL LABORATORY
EST. 1945

UNCLASSIFIED - LA-UR 11-05196

Slide 27

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

NNSA



Los Alamos
NATIONAL LABORATORY
EST. 1945

UNCLASSIFIED - LA-UR 11-05196

Slide 28

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

NNSA




Los Alamos
NATIONAL LABORATORY
EST. 1943

UNCLASSIFIED - LA-UR 11-05196

Slide 20

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

NNSA



Los Alamos
NATIONAL LABORATORY
EST. 1943

UNCLASSIFIED - LA-UR 11-05196

Slide 30

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

NNSA



 **Los Alamos**
NATIONAL LABORATORY
EST. 1943

UNCLASSIFIED - LA-UR 11-05196

Slide 31

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

